

Dr Shibayan Baiswas
National Institute of Technology, Hamirpur (HP)
Department of Mechanical Engineering
Final Exam May 2023
B.Tech.
Somesha Sharma

19/5/2023
(m)
206

Branch : DoME

Semester : 4th

Course Name: Industrial Engineering

Course Code : ME 224

Time : 3.00 Hours

Total Marks : 50

Note: Attempt all the questions.

1. Answer all the questions.

(4+2+2+2= 10 marks)

- (i) What is the relevance of Break Even Analysis in an Organization? Plot the diagram and show BEP, margin of safety, profit & loss zone, variable cost, fixed cost on this diagram.
- (ii) What are the Break Even Formula and PV Ratio? What are the different assumptions used in Break Even Analysis.
- (iii) What is concurrent Engineering and its three different technologies? Explain.
- (iv) What is the significance of Standardization, Simplification, Specialization and Diversification in Product Design and Development?

2. Answer all the questions.

(2+2+2+2+2= 10 marks)

- (I) What are the measures of quality of a product? How are they related to Quality of Conformance and Performance?
- (II) How can you control the three types of Quality Costs? Suggest strategies.
- (III) Plot 'Cause and Effect Diagram' to explore reasons of Rejection of Steel Billets?
- (IV) What are Control Charts? Plot it to ensure quality of Piston Cylinders.
- (V) What is reliability engineering? How is it related to Quality Control?

3. Answer all the questions.

(2+2+2+2+2= 10 marks)

- (i) What is the difference among Material Requirement Planning and Enterprise Resource Planning? Explain.
- (ii) What is the relationship among JIT and TQM? Explain.
- (iii) What is Benchmarking? How can one achieve Benchmarking? Suggest the techniques.
- (iv) What is Business Process Reengineering? How is it different from JIT and TQM?
- (v) What is ISO 9000? How is it related to Industry 4.0?

4. Answer all the questions.

(2+2+2+2+2= 10 marks)

- (i) As a management head of an industry why is work study a valuable tool?
- (ii) How does the work study influence people, product, and process?
- (iii) What steps would an industrial engineer follow to conduct the method study?
- (iv) Time study is dependent upon the expert who performs it. Comment.
- (v) What is work sampling? What are the advantages of performing the work sampling?

5. Answer all the questions.

(2+2+2+2+2= 10 marks)

- (i) What are the basic functions of a material handling system? What is the relationship between material handling system and plant layout?
- (ii) Define ergonomics. What role does ergonomics play in human resource planning?
- (iii) What are different types of material handling systems?
- (iv) Differentiate between different forecasting horizons? What are the different steps followed to conduct a forecasting?
- (v) What are the different costs associated with inventory?